

ENVIRONMENTAL ASSESSMENT
EA : OR-128-99-15

**A Proposal for Culvert Replacement
Through Jobs-In-The -Woods Funding
In the Boulder Creek Analysis Area**

APPENDIX B
CONSISTENCY WITH ACS OBJECTIVES

Summary of Boulder Creek Culvert Replacement design features, impacts of the Proposed Action on aquatic/riparian values within the Klamath Province Siskiyou Mountains Physiographic Area, Matrix of Factors and Indicators (Attachment 3 to the NMFS Biological Opinion, March 18, 1997), and assessment of consistency with the ACS objectives.

ACS Objectives Northwest Forest Plan	Factors/ Indicators (NMFS)	Boulder Creek Culvert Replacement Design Features and Impact Analysis
<p>2,4,8,9 Design features will maintain spacial and temporal connectivity within the drainage network with regard to shade and water temperature (ACS#2), maintain water quality with respect to temperature (ACS#4), maintain vegetation for adequate summer/winter thermal regulation for aquatic species (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9).</p>	<p>Water Quality / Temperature</p>	<p>Riparian vegetation would be maintained on all streams within, and adjacent to, the project area. No canopy will be cut, girdled, or otherwise disturbed, and there will be no direct effect on stream temperature.</p>
<p>4,5,6,8,9 Design features will maintain water quality (ACS#4) in the long term, temporarily degrade turbidity in the short term, but maintain the sediment regime in the long term (ACS#5), maintain instream flows to retain patterns of sediment routing (ACS#6), maintain vegetation to provide adequate rates of erosion (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9).</p>	<p>Water Quality / Sediment / Turbidity</p>	<p>The proposed action includes excavation of an existing fill and removal of a culvert from within the active channel of Boulder Creek. Elevated stream turbidity is likely during construction and during the first freshet thereafter, due to suspension of fine sediments from the fill and channel substrates. These are expected to be short-term pulses. Turbidity during construction is likely to be above summer background levels. Turbidity associated with the first freshet/s subsequent to construction is expected to be within the present range of variability for the site. The proposed actions were determined to "<i>degrade</i>" the turbidity baseline in the short term (two weeks). Short-term turbidity would be minimized by best management practices (BMPs) (water diversion, silt fencing/mats, seeding and mulching, and seasonal restrictions). Riparian vegetation would be maintained on all streams within the project area.</p>

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<p>4,6,8,9 Design features will maintain water quality with regard to chemical concentration/nutrients (ACS#4), maintain instream flows to retain patterns of nutrient routing (ACS#6), maintain vegetation to provide adequate nutrient filtering (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9).</p>	<p>Water Quality / Chemical Concentration / Nutrients</p>	<p>Riparian vegetation would be maintained on all streams within the project area to maintain the natural input of organic material into streams.</p> <p>The proposed action involves the use of heavy equipment in immediate proximity to the stream channel. However, water quality will be maintained through implementation of the <i>Conservation Practices for Streams and Riparian Reserves #13</i> (Coos Bay District ROD, BMPs p. D-3) and state requirements for spill containment.</p>
<p>2,9 These design features will restore spacial and temporal connectivity within the drainage network (ACS#2) and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9).</p>	<p>Habitat Access / Physical Barriers</p>	<p>The proposed action would replace the existing culvert [barrier] at the 35-14-10.0 road crossing on Boulder Creek with a flatcar-style bridge, in order to restore access for salmonids to a portion of their historic range. The design is expected to provide access to cold-water refuge habitat during the critical summer low-flow period and suitable spawning habitat during winter.</p>
<p>3,5,6,8,9 Design features will help restore the banks and bottom configurations of the aquatic system (ACS#3), temporarily degrade turbidity in the short term, but maintain the sediment regime in the long term (ACS#5), maintain instream flows to retain patterns of sediment routing (ACS#6), maintain vegetation to provide adequate rates of erosion, and to supply coarse woody debris sufficient to sustain physical complexity and stability (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9).</p>	<p>Habitat Elements / Sediment</p>	<p>The proposed design would accommodate the active channel dimensions of Boulder Creek, thereby helping to restore the sediment transport process. Removing the lateral and vertical constraint imposed by the existing culvert could result in downstream sedimentation as the stream cuts its way through the IN-CHANNEL SEDIMENT DEPOSIT IMMEDIATELY UPSTREAM OF THE road crossing. RAPID MOBILIZATION AND EXPORT OF THESE ACCUMULATED SEDIMENTS COULD [AT LEAST TEMPORARILY] OVERWHELM THE CHANNEL DOWNSTREAM. HOWEVER, the project would not result in additional sediment delivery, AND THE DESIGN INCORPORATES GRADIENT-CONTROL STRUCTURES TO PROVIDE FOR THE TIMELY RELEASE OF THE accumulated sediment to protect the aquatic habitat downstream. Disturbed soils will be seeded and mulched to protect against transport of sediment to the stream channel during subsequent rains. Riparian vegetation would be maintained on all streams within the project area</p>

ACS Objectives Northwest Forest Plan	Factors/ Indicators (NMFS)	Boulder Creek Culvert Replacement Design Features and Impact Analysis
6,8,9 These design features will maintain instream flows to retain patterns of wood routing (ACS#6), maintain vegetation to provide a supply of coarse woody debris (ACS#8), and therefore maintain habitat for well-distributed riparian-dependent populations (ACS#9).	Habitat Elements / Large Woody Debris	The proposed action would not involve the removal of large wood from the stream channel or adjacent riparian areas. Therefore, the potential recruitment of large wood from debris torrents, landsliding, and windthrow will be maintained. Furthermore, the design would accommodate the active channel dimensions of Boulder Creek, thereby helping to restore the LWD routing process.
2,3,5,8,9	Habitat Elements / Pool Area (%)	The proposed actions are not expected to affect pool frequency within the project area.
2,3,5,6,9	Habitat Elements / Pool Quality	The proposed actions are not expected to affect pool character and quality within the project area.
1,2,3,6,7,8,9	Habitat Elements / Off-Channel Habitat	The proposed actions involve work within the stream channel and adjacent flood-prone area. However, the project will not diminish LWD recruitment, accelerate sediment delivery, alter the flow regime, reduce the flood-prone area or impinge on its function; thus would not affect off-channel habitat.
1,2,3,5,6,8,9	Channel Condition & Dynamics / Width/Depth Ratio	The proposed design would accommodate the active channel dimensions of Boulder Creek, thereby helping to restore the sediment transport process and appropriate W/D ratios. Removing the lateral and vertical constraint imposed by the existing culvert could [AT LEAST TEMPORARILY] result in downstream aggradation as the stream cuts its way through the IN-CHANNEL SEDIMENT DEPOSIT IMMEDIATELY UPSTREAM OF THE 35-14-10.0 road crossing. HOWEVER project would not result in additional sediment delivery from out-of-channel sources, AND THE DESIGN INCORPORATES GRADIENT-CONSTRUCTURES TO PROVIDE FOR THE TIMELY RELEASE OF THE acc sediment to protect the channel condition downstream.
3,5,6,8,9	Channel Condition & Dynamics / Streambank Condition	The proposed action would not involve the removal of streamside vegetation. Design features include seeding and mulching all disturbed surfaces. Therefore, the proposed actions are not likely to affect streambank condition.
1,2,3,6,7,8,9	Channel Condition & Dynamics / Floodplain Connectivity	Although the project site is within the flood-prone area of Boulder Creek, the structures proposed would have minimal impacts on floodplain interactions and connectivity. The project will not reduce the flood-prone area or impinge on its function.
1,2	Watershed Condition / Road Density & Location	The proposed actions do not affect road density or location.

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1,2,5,8,9	Watershed Condition / Disturbance History	Although the proposed actions would occur within [and adjacent to] a fish-bearing stream, the project is within an existing road prism, and will not disturb unstable or potentially unstable areas, or have long-term adverse impacts to aquatic refugia.
1,3,5,8	Watershed Condition / Landslide and Erosion Rates	The proposed action would occur on stable, low-gradient areas. See discussion for the Water Quality / Sediment / Turbidity factor/indicator.
1,2,4,8,9	Watershed Condition / Riparian Reserves	The project site is private industrial timberland. There are no Riparian Reserves or other federally-managed lands in the immediate vicinity of the project site. Riparian vegetation would be maintained on all streams within, and adjacent to, the project area to provide shade, large wood recruitment, habitat protection and connectivity.

Conclusion

The proposed project was determined to be consistent with Watershed Assessment recommendations and findings, applicable Northwest Forest Plan Standards and Guidelines, NEPA Documentation, and applicable aspects of NMFS' March 18, 1997 Biological Opinion (See Analysis File). In addition, the proposed project would not hinder or prevent attainment of Aquatic Conservation Strategy objectives at the 5th field watershed scale over the long-term.